

## Wheel-Like Wire Holder

### BACKGROUND OF THE INVENTION

#### 5 1. Field of the Invention

The present invention relates to a wheel-like wire holder for holding a live high-voltage wire at its isolating center space, which is inaccessible to any surrounding wire or parts.

#### 10 2. Related Art

In a certain electric appliance such as a television receiver, a plurality of electric wires are used to apply electromotive force of high-frequency and/or high-voltage to some selected parts, and then such live wires need to be so isolated from surrounding electric wires and parts that no adverse effects or interference may  
15 be caused thereon. To assure that such a live high-voltage or high-frequency wire be kept apart from the surrounding wires and parts, a variety of wire holders are used. One example of wire holder is shown in JP 5-85082(U), titled "Electric Wire Holder".

The wire holder looks like a wheel, comprising a ring, a center hub, and two bifurcate spokes and one split-spoke connecting the center hub to the ring. The  
20 center hub defines a center space to allow a high-voltage lead wire to fit in, and the ring cuts off access to the high-voltage lead wire, which is press-fitted in the center hub. The center hub consists of three solid cylinders arranged circularly and separated an equi-angular distance from each other. The two bifurcate spokes and the split-spoke connect each two adjacent cylinders to the inner circumference of the  
25 ring. The ring has a cut to define a loophole. The split-spoke connects selected two adjacent cylinders to the confronting edges of the loophole, thus defining a radial passage to the hub space. Specifically the radial passage is defined by the confronting, outward-diverging radial pieces of the split-spoke, allowing an electric lead wire to follow the radial passage and fit in the hub space.

30 Referring to fig.4, such a wire holder 3 holds an anode lead wire 2 extending to a flyback transformer 1, thereby preventing any surrounding wire from coming close to the live high-voltage lead wire 2. The anode lead wire 2 is inserted from the loophole 4 to the center hub space 5. Disadvantageously the wire holder structure, however, permits another lead wire to invade through the loophole 4 and come close

to the high-voltage wire 2. Still disadvantageously, the wire holder can be easily slide along the high-voltage lead wire 2, and thus, it cannot make sure to keep isolating center space which is inaccessible to any surrounding wire.

With a view to keep a nearby wire apart from the live high-voltage lead wire, it is bounded to the ring with a binding wire. The binding work, however, is troublesome, and the unbinding is troublesome, too. The use of binding wires increases the cost.

In view of the above one object of the present invention is to provide a wheel-like wire holder which is capable of keeping the high-voltage wire apart from the surrounding, and of holding another lead wire apart from the high-voltage wire.

## **SUMMARY OF THE INVENTION**

To attain this object a wheel-like wire holder comprises a ring, a center hub, and a plurality of spokes connecting the center hub to the ring, the center hub defining a center space to allow a high-voltage lead wire to fit in, is improved according to the present invention in that the ring and hub have cuts on their circumferences, these cuts being connected by two spokes to define a radial passage for the center space to communicate with the outside, the cut of the ring being adapted to be open and closed, the ring having an extra space defined next to the cut for accommodating another lead wire inside, the extra space being adapted to be open and closed, also.

The center space of the center hub and the radial passage may form a loophole defined by the opposite ends of the two spokes radially extended toward the ring, one of these spokes reaching short of the ring and being bent to provide a sub-spoke, which is connected the ring to define the extra space, whereas the other spoke being connected to the ring and having a barrier piece projecting toward the extra space, thereby blocking access to the center hub.

The ring may have fastening pieces formed on the confronting ends of the cut to close and open the loophole.

Other objects and advantages of the present invention will be understood from the following description of a wheel-like wire holder according to one preferred embodiment of the present invention, which is shown in accompanying drawings.

## **BRIEF DESCRIPTION OF THE DRAWING**

Fig.1 illustrates a wheel-like wire holder according to the present invention

with its loophole open;

Fig.2 illustrates the wheel-like wire holder with its loophole closed;

Fig.3 illustrates the wheel-like wire holder with a high-voltage lead wire fit and some lead wires contained in the extra space; and

5 Fig.4 illustrates a conventional wheel-like wire holder as holding the anode lead wire in the television receiver.

## DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

Referring to Fig.1, a wheel-like wire holder according to one embodiment of  
10 the present invention comprises a ring 11, a center hub 12, and a plurality of spokes 13,13; 14a, 14b and 15a and 15b. These spokes connect the center hub 12 to the ring 11. The spokes 14a and 14b somewhat diverge outward to define a sector space 16 therebetween. Likewise, the spokes 15a and 15b somewhat diverge outward to define a sector space 17 therebetween. As seen from the drawing, these  
15 sector spaces 16 and 17 extend radially from the center hub space 23 to the ring 11. The center hub space 23 and the sector space 17 forms a loophole defined by the opposite ends of the two spokes radially extended toward the ring. The ring 11 is cut at two points between the spokes 14a and 14b, as well as between the spokes 15a and 15b respectively so that the sector spaces 16 and 17 are communicated with the  
20 outside of the ring.

The center hub space 23 communicates with the sector space 17, and the sector space 17 increases or decreases with deformation of the hub space 23. Likewise, the other sector space 16 varies in size. The spoke 15a reaches short of the ring 1, and is bent to provide a sub-spoke 18, which is connected to the ring 11 to  
25 define a generally triangular space 19 between the sub-spoke 18 and the ring 11.

The other spoke 15b is connected to the ring 11. Thus, the spokes 15a and 15b define a radial passage accessible from the outside to the center space 23. Also, the spoke 15b has a barrier piece 20 projecting toward the extra space 19, thereby cutting off access to the center hub space 23. The ring 11 has fastening  
30 pieces 21 and 22 formed on the confronting ends of the cut to close and open the loophole (23 and 17). The fastening pieces are a hook 21 and a projection 22 to engage with each other (see Figs.1 and 2).

Fig.2 shows the wheel-like holder with the sector space 17 closed and with the other sector space 16 open. In the closing position the fastening pieces 21 and

22 are caught by each other. Referring to Fig.3, the extra space 19 is closed with other wires 25 contained. Such extra wires 19 cannot come close to the high-voltage wire 24 at the center hub space 23.

5 A high-voltage lead wire 24 is inserted from the loophole of the ring 11 to follow the sector passage 17 to the center hub space 23. Referring to Fig.3 again, the high-voltage lead wire 24 is press-fitted in the hub space 23, and the loophole is closed to change the hub 12 in shape, thereby reducing the center hub space 23 to tightly hold the high-voltage lead wire 24. Thus, the wheel-like wire holder is firmly fastened to the high-voltage lead wire 24, and it cannot slide along the surface of the  
10 high-voltage lead wire. Some nearby lead wires 25 are confined in the extra space 19.

The wheel-like wire holder provides advantages as follows:

no lead wires are allowed to come close to the high-voltage lead wire once confined in the hub space;

15 the access to the center hub space is blocked by the barrier piece, thereby preventing the inadvertent insertion of another lead wire into the center hub space while it is being put in the extra space 19; and

closure of the loophole with the fastening pieces caught together causes the high-voltage lead wire to be tightly squeezed in the center hub space, thereby  
20 assuring that the wire holder be prevented from sliding along and departing from the high-voltage lead wires.